

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization International Bureau



(43) International Publication Date  
7 July 2005 (07.07.2005)

PCT

(10) International Publication Number  
**WO 2005/061437 A3**

(51) International Patent Classification<sup>7</sup>: C07K 5/00, A61K 38/04, A61P 9/06

(21) International Application Number:  
PCT/GB2004/005416

(22) International Filing Date:  
23 December 2004 (23.12.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:  
60/532,111 23 December 2003 (23.12.2003) US  
2003 01928 23 December 2003 (23.12.2003) DK

(71) Applicant (for all designated States except US):  
**ZEALAND PHARMA A/S** [DK/DK]; Smedeland 26B, DK-2600 Glostrup (DK).

(71) Applicant (for MN only): **KIDDLE, Simon** [GB/GB]; York House, 23 Kingsway, London Greater London WC2B 6HP (GB).

(72) Inventor; and

(75) Inventor/Applicant (for US only): **LARSEN, Bjarne, Due** [DK/DK]; Jyllingevej 16.1., DK-2720 Vanlose (DK).

(74) Agents: **KIDDLE, Simon et al.**; Mewburn Ellis LLP, York House, 23 Kingsway, London Greater London WC2B 6HP (GB).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

**Published:**

- with international search report
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

(88) Date of publication of the international search report:  
25 August 2005

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

WO 2005/061437 A3

(54) Title: ISOPEPTIDE GAP JUNCTION MODULATORS

(57) **Abstract:** The invention relates to isopeptides capable of modulating intracellular gap junctional communication. The invention further relates to methods of using the isopeptides to maintain or enhance such communication. In one aspect, the isopeptides are antiarrhythmic isopeptides which target the same cells targeted by AAP, AAP10, HP5, and/or functional analogs thereof, i.e. the isopeptides are able to modulate the function of these cells by agonizing or antagonizing the function of AAP, AAP10, HP5, and/or functional analogs thereof.